AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-7. (canceled)

8. (withdrawn, currently amended) The An amyloid-targeting imaging agent of claim 1, of the formula

$$A_t—(—A_{lnk}—)_z—A_{lab} \qquad \textbf{(I)}$$

wherein A_t is of formula

$$Q^b—\left[—Y^-—X^+\right]_{n^2} \qquad \textbf{(IV)}$$

wherein Y^- is an anionic group at physiological pH; Q^b is a carrier molecule; X^+ is a cationic group; and n^2 is 2; A_{lnk} is a linker moiety; and A_{lab} is a labeling moiety~~an integer selected such that the biodistribution of the targeting moiety for the intended target site is not prevented while maintaining activity of the targeting moiety~~.

9. (withdrawn) The amyloid-targeting imaging agent of claim 8, wherein Y is a sulfonate group.

10. (withdrawn) The amyloid-targeting imaging agent of claim 8, wherein Y is a sulfate or thiosulfate group.

11. (withdrawn) The amyloid-targeting imaging agent of claim 8, wherein Y is a tetrazole group.

12-20. (canceled)

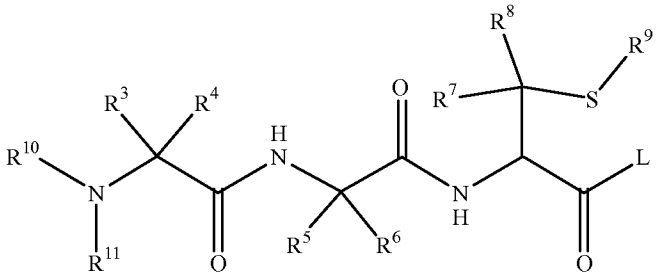
21. (currently amended) The amyloid-targeting imaging agent of claim 31 or claim 32~~claim 1~~, wherein A_{lab} includes a radionuclide selected from ^{99m}Tc, ^{99}Tc, ^{64}Cu, ^{67}Cu, ^{97}Ru, ^{109}Pd,

^{186}Re, ^{188}Re, ^{111}In, ^{113m}In, ^{153}Gd, ^{90}Y, ^{153}Sm, ^{166}Ho, ^{198}Au, ^{199}Au, ^{90}Sr, ^{89}Sr, ^{105}Rh, ^{201}Tl, ^{51}Cr, ^{67}Ga, ^{57}Co, ^{60}Co, ^{123}I, ^{125}I, ^{131}I or ^{18}F.

22. (currently amended) The amyloid-targeting imaging agent of claim 31 or claim 32 ~~claim 1~~, wherein A_{lab} includes a radionuclide selected from the group consisting of Tc and Re.

23. (currently amended) The amyloid-targeting imaging agent of claim 31 or claim 32 ~~claim 1~~, wherein A_{lab} is a metal chelate of a radioactive or paramagnetic metal ion.

24. (withdrawn, currently amended) The amyloid-targeting imaging agent of claim 31 or claim 32 claim 1, wherein A_{lab} comprises a chelating ligand of the formula



(VII)

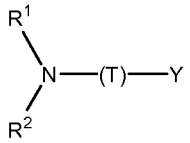
where R^{10} is a linear or branched, saturated or unsaturated C_{1-4} alkylene group interrupted by one or two heteroatoms; R^{11} is H or R^{10}, or R^{10} and R^{11} taken together, form a 5- to 8-membered saturated or unsaturated heterocyclic ring optionally substituted with one or more of halogen, hydroxyl, amino, carboxyl, oxo, C_{1-4} alkyl, aryl, or C(O)R groups; R^3, R^4, R^5 and R^6 are independently H, carboxyl, C_{1-4} alkyl, an alpha carbon side chain of a D- or L-amino acid other than proline, or C(O)R; R^7 and R^8 are independently H, carboxyl, amino, C_{1-4} alkyl, C_{1-4} alkyl; R^9 is H or a sulfur protecting group; and L is hydroxyl, alkoxy, an amino acid residue, or a linking group.

25-30. (canceled)

31. (currently amended) ~~The~~ An amyloid-targeting imaging agent of ~~claim 1,~~ of the formula

$$A_t\text{—}(\text{—}A_{lnk}\text{—})_z\text{—}A_{lab} \qquad \textbf{(I)}$$

where z is 0 or 1; A_t is an amyloid targeting moiety of the formula



where

R^1 is an unsubstituted or substituted C_{1-20} alkyl, C_{2-20} alkenyl, hydroxyalkyl, or a single-ring aromatic group;

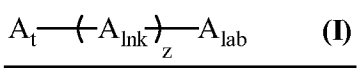
R^2 is ~~a~~ an unsubstituted or substituted C_{1-20} alkyl, C_{2-20} alkenyl, ~~hydroxyalkyl,~~ a single-ring aromatic group, or a hydrogen atom, or R^1 and R^2, taken together with the nitrogen to which they are attached, form a heterocyclic group ~~which is a fused ring structure~~;

T is an alkylene group of the formula $-(CH_2)_n-$ wherein n is an integer from 2-12;

Y is SO_3X, and X is a cationic group;

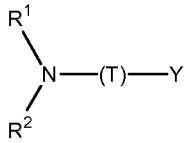
A_{lnk} is a linker moiety; and A_{lab} is a labeling moiety.

32. (currently amended) ~~The~~ An amyloid-targeting imaging agent of ~~claim 1,~~ of the formula



(I)

where z is 0 or 1; A_t is an amyloid targeting moiety of the formula



where

R^1 is a C_5-C_{18} unsubstituted or substituted alkyl, ~~hydroxyalkyl~~ or an unsubstituted or substituted single-ring aromatic group;

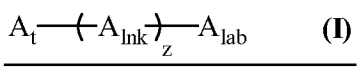
R^2 is a hydrogen atom or [[an]] a C_{1-8} alkyl group;

T is an alkylene group of the formula $-(CH_2)_n-$ wherein n is an integer from 2-12;

Y is SO_3X, and X is a cationic group;

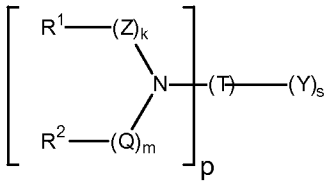
A_{lnk} is a linker moiety; and A_{lab} is a labeling moiety.

33. (original) ~~The~~ An amyloid-targeting imaging agent of ~~claim 1,~~ of the formula



(I)

where A_t is of the formula



where

- R^1 is an alkyl, an alkenyl, or an aromatic group;
- R^2 is a hydrogen atom, an alkyl group, or an aromatic group, or R^1 and R^2, taken together, form a heterocyclic group which is a fused ring structure;
- Z and Q are each independently a carbonyl (C=O), thiocarbonyl (C=S), sulfonyl (SO_2), or sulfoxide (S=O) group;
- k is 1 and m is 0 or 1;
- p and s are each 1;
- T is an alkylene group of the formula $-(CH_2)_n-$ wherein n is an integer from 2-12;
- Y is SO_3X, and X is a cationic group.

34. (canceled)

35. (withdrawn) The amyloid-targeting imaging agent of claim 33, wherein said A_t is selected from the group consisting of 3-acetylamino-1-propanesulfonic acid, 3-benzoylamino-1-propanesulfonic acid, and 2-acrylamido-2-methyl-1-propanesulfonic acid.

36. (withdrawn) The amyloid-targeting imaging agent of claim 33, wherein said A_t is selected from the group consisting of 3-phthalimido-1-propanesulfonic acid, N-(3-sulfopropyl)saccharin and 4-phthalimido-1-butanesulfonic acid.

37. (withdrawn) The amyloid-targeting imaging agent of claim 32, wherein said A_t is selected from the group consisting of 3-phenylamino-1-propanesulfonic acid, 3-(4-pyridylamino)]-1-propanesulfonic acid, 3-(benzylamino)-1-propanesulfonic acid, 2-deoxy-2-(3-sulfopropyl)amino-D-glucose, 3-[(-3,4-dimethyl-1-adamantyl)-amino]-1-propanesulfonic acid, 3-[(-3,5-dimethyl-1-adamantyl)-amino]-1-propanesulfonic acid, 3-(2-hydroxyethyl)amino-1-propanesulfonic acid, 3-(3-hydroxy-1-propyl)amino-1-propanesulfonic acid, (-)-3-[(R)-2-hydroxy-1-propyl]amino-1-propanesulfonic acid, 3-

[(d,l)-1-hydroxy-2-propyl]amino-1-propanesulfonic acid, 3-(4-hydroxy-1-butyl)amino-1-propanesulfonic acid, 3-(5-hydrox-1-pentyl)amino-1-propanesulfonic acid, 3-(6-hydroxy-1-hexyl)amino-1-propanesulfonic acid, 3-(4-hydroxyphenyl)amino-1-propanesulfonic acid, (+)-3-[(S)-2-hydroxy-1-propyl]amino-1-propanesulfonic acid, (+)-3-[(S)-1-hydroxy-2-propyl]amino-1-propanesulfonic acid, (-)-3-[(R)-1-hydroxy-2-propyl]amino-1-propanesulfonic acid, (+)-3-[(S)-1-hydroxy-2-butyl]amino-1-propanesulfonic acid, (-)-3-[(R)-1-hydroxy-2-butyl]amino-1-propanesulfonic acid, 3-[(dl)-5-hydroxy-2-pentyl]amino-1-propanesulfonic acid, 3-[(dl)-6-hydroxy-2-hexyl]amino-1-propanesulfonic acid, 3-(1-hydroxymethyl-1-cyclopentyl)amino-1-propanesulfonic acid, 3-amylamino-1-propanesulfonic acid, 3-hexylamino-1-propanesulfonic acid, 3-heptylamino-1-propanesulfonic acid, 3-octylamino-1-propanesulfonic acid, 3-nonylamino-1-propanesulfonic acid, 3-decylamino-1-propanesulfonic acid, 3-undecylamino-1-propanesulfonic acid, 3-dodecylamino-1-propanesulfonic acid, 3-tridecylamino-1-propanesulfonic acid, 3-tetradecylamino-1-propanesulfonic acid, 3-hexadecylamino-1-propanesulfonic acid, and 3-octadecylamino-1-propanesulfonic acid.

38-42. (canceled)

43. (currently amended) A kit for preparing a radiopharmaceutical preparation, said kit comprising:

an amyloid-targeting imaging agent of claim 31 or claim 32 ~~claim 1~~;

a reducing agent;

a buffering agent;

a transchelating agent, and

instructions for the preparation and use of the radiopharmaceutical in the imaging of amyloid or an amyloid-related condition.

44-50. (canceled)

51. (withdrawn, currently amended) A method of diagnostic medical imaging of an amyloid-associated disease comprising the steps of administering to a patient a pharmaceutical composition according to claim [[1]] 31 or claim 32 and then imaging said patient.

52. (withdrawn) The method of diagnostic medical imaging according to claim 51 wherein A_{lab} of said pharmaceutical composition is a radiopharmaceutical.

53. (withdrawn) The method of diagnostic medical imaging according to claim 51 wherein A_{lab} of said pharmaceutical composition is a metal chelate.

54. (withdrawn) The method of diagnostic medical imaging according to claim 53 wherein said metal chelate is gadolinium-DTPA, gadolinium-DOTA, or gadolinium-DO3A.

55. (withdrawn) The method of diagnostic medical imaging according to claim 53 wherein said metal chelate is a chelate of ^{99m}Tc or ^{111}In.

56. (withdrawn) The method of diagnos tic medical imaging according to claim 51 wherein said imaging step is ultrasound imaging.

57. (withdrawn) The method of claim 105, wherein said imaging step is radionuclide imaging.

58. (withdrawn) The method of claim 57, wherein said imaging step is SPECT imaging.

59. (withdrawn) The method of claim 105, wherein said imaging step is magnetic resonance imaging.

60. (withdrawn) The method of claim 105, wherein said imaging step is ultrasound imaging.

61. (withdrawn) The method of claim 105, wherein said imaging step is X-ray imaging.

62. (withdrawn) The method of claim 105, wherein said imaging step is fluorescence imaging.

63-91. (canceled)

92. (withdrawn, currently amended) The method of claim [[87]] 105, wherein said A_t is selected from the group consisting of 3-phenylamino-1-propanesulfonic acid, 3-(4-pyridylamino)]-1-propanesulfonic acid, 3-(benzylamino)-1-propanesulfonic acid, 2-deoxy-2-(3-sulfopropyl)amino-D-glucose, 3-[(-3,4-dimethyl-1-adamantyl)-amino]-1-propanesulfonic acid, 3-[(-3,5-dimethyl-1-adamantyl)-amino]-1-propanesulfonic acid, 3-

(2-hydroxyethyl)amino-1-propanesulfonic acid, 3-(3-hydroxy-1-propyl)amino-1-propanesulfonic acid, (-)-3-[(R)-2-hydroxy-1-propyl]amino-1-propanesulfonic acid, 3-[(d,l)-1-hydroxy-2-propyl]amino-1-propanesulfonic acid, 3-(4-hydroxy-1-butyl)amino-1-propanesulfonic acid, 3-(5-hydrox-1-pentyl)amino-1-propanesulfonic acid, 3-(6-hydroxy-1-hexyl)amino-1-propanesulfonic acid, 3-(4-hydroxyphenyl)amino-1-propanesulfonic acid, (+)-3-[(S)-2-hydroxy-1-propyl]amino-1-propanesulfonic acid, (+)-3-[(S)-1-hydroxy-2-propyl]amino-1-propanesulfonic acid, (-)-3-[(R)-1-hydroxy-2-propyl]amino-1-propanesulfonic acid, (+)-3-[(S)-1-hydroxy-2-butyl]amino-1-propanesulfonic acid, (-)-3-[(R)-1-hydroxy-2-butyl]amino-1-propanesulfonic acid, 3-[(dl)-5-hydroxy-2-pentyl]amino-1-propanesulfonic acid, 3-[(dl)-6-hydroxy-2-hexyl]amino-1-propanesulfonic acid, 3-(1-hydroxymethyl-1-cyclopentyl)amino-1-propanesulfonic acid, 3-amylamino-1-propanesulfonic acid, 3-hexylamino-1-propanesulfonic acid, 3-heptylamino-1-propanesulfonic acid, 3-octylamino-1-propanesulfonic acid, 3-nonylamino-1-propanesulfonic acid, 3-decylamino-1-propanesulfonic acid, 3-undecylamino-1-propanesulfonic acid, 3-dodecylamino-1-propanesulfonic acid, 3-tridecylamino-1-propanesulfonic acid, 3-tetradecylamino-1-propanesulfonic acid, 3-hexadecylamino-1-propanesulfonic acid, and 3-octadecylamino-1-propanesulfonic acid.

93-94. (canceled)

95. (withdrawn, currently amended) A method for diagnostic medical imaging of an amyloid-associated disease in a patient, comprising administering to a patient a pharmaceutical composition comprising an amyloid-targeting imaging agent of claim 31 or claim 32, ~~the formula~~

~~$A_t=(-A_{lnk}-)_z=A_{lab}$ (I)~~

~~as defined in claim 63~~ and ~~then~~ imaging the amyloid-targeting imaging agent in said patie nt..

96. (withdrawn) The method of claim 95, wherein A_{lab} of said pharmaceutical composition is a radiopharmaceutical.

97. (withdrawn) The method of claim 95, wherein A_{lab} of said pharmaceutical composition is a metal chelate.

98. (withdrawn) The method of claim 95, wherein A_{lab} of said pharmaceutical composition is a metal chelate and said imaging step is magnetic resonance imaging or radionuclide imaging.

99. (withdrawn) The method of claim 97, wherein said metal chelate is gadolinium-DTPA, gadolinium-DOTA, or gadolinium-DO3A.

100. (withdrawn) The method of claim 97, wherein said metal chelate is a chelate of ^{99m}Tc or ^{111}In.

101. (withdrawn, currently amended) The method of claim [[63]] 95, wherein said imaging step is ultrasound imaging.

102. (canceled)

103. (withdrawn, currently amended) A method for diagnosing an amyloid-related condition in a patient, comprising administering an amyloid-targeting imaging agent according to claim [[1]] 31 or claim 32 to a patient, and imaging said amyloid-targeting imaging agent in said patient to determine the presence of amyloid in said patient, such that the presence or absence of an amyloid-related condition in said patient is determined.

104. (withdrawn) The method of claim 103, wherein said amyloid-related condition is selected from the group consisting of Creutzfeld-Jakob Disease (CJD), Kuru, transmissible cerebral amyloidoses (also known as transmissible virus dementias), familial CJD, scrapie, transmissible mink encephalopathy, bovine spongiform encephalopathy (BSE), inflammation-associated amyloid, type II diabetes, primary amyloidosis, feline spongiform encephalopathy, non-transmissible cerebral amyloidosis (e.g., Alzheimer's disease), prion-mediated diseases, dialysis-related amyloidosis, light chain-related amyloidosis, cerebral amyloid angiopathy, and Alzheimer's disease.

105. (withdrawn, currently amended) A method for imaging amyloid deposition in a patient, comprising administering an amyloid-targeting imaging agent according to claim [[1]] 31

or claim 32 to a patient, and imaging said amyloid-targeting imaging agent in said patient to determine the presence of amyloid in said patient.

106. (new) The amyloid-targeting imaging agent of claim 31, wherein n is an integer from 2 to 4.

107. (new) The amyloid-targeting imaging agent of claim 31, wherein the heterocyclic group is a six-membered heterocyclic group.

108. (new) The amyloid-targeting imaging agent of claim 107, wherein the six-membered heterocyclic group is piperidyl.

109. (new) The amyloid-targeting imaging agent of claim 108, wherein A_t is 4-(1-piperidyl)-1-butanesulfonic acid, or a pharmaceutically acceptable salt thereof.

110. (new) The amyloid-targeting imaging agent of claim 107, wherein the heterocyclyl is 1,2,3,6-tetrahydropyridyl.

111. (new) The amyloid-targeting imaging agent of claim 110, wherein A_t is 3-[1-(1,2,3,6-tetrahydropyridyl)]-1-propanesulfonic acid, or a pharmaceutically acceptable salt thereof.

112. (new) The amyloid-targeting imaging agent of the formula in claim 32, wherein n is an integer from 2 to 4.

113. (new) The amyloid-targeting imaging agent of claim 32, wherein R^1 is an alkyl group which is substituted with an amino group and a carboxyl group.

114. (new) The amyloid-targeting imaging agent of claim 113, wherein R^1 is 5-amino-1-carboxy-1-pentyl; R^2 is hydrogen.

115. (new) The amyloid-targeting imaging agent of claim 114, wherein A_t is a-N-(3-sulfopropyl)-L-lysine, or a pharmaceutically acceptable salt thereof.

116. (new) The amyloid-targeting imaging agent of claim 32, wherein R^1 is an alkyl group which is substituted with a hydroxyl group.

117. (new) The amyloid-targeting imaging agent of claim 116, wherein R^1 is 6-hydroxy-1-hexyl.

118. (new) The amyloid-targeting imaging agent of claim 117, wherein R^2 is hydrogen.

119. (new) The amyloid-targeting imaging agent of claim 117, wherein A_t is 3-(6-hydroxy-1-hexyl)amino-1-propanesulfonic acid, or a pharmaceutically acceptable salt thereof.

120. (new) The amyloid-targeting imaging agent of claim 32, wherein R^1 is an unsubstituted or substituted C_{4-7} cycloalkyl group.

121. (new) The amyloid-targeting imaging agent of claim 120, wherein the cycloalkyl is substituted with a hydroxymethyl.

122. (new) The amyloid-targeting imaging agent of claim 121, wherein the cycloalkyl is cyclopentyl.

123. (new) The amyloid-targeting imaging agent of claim 120, wherein R^1 is 1-hydroxy-1-cyclopentyl; R^2 is hydrogen.

124. (new) The amyloid-targeting imaging agent of claim 123, wherein A_t is 3-(1-hydroxy-1-cyclopentyl)amino-1-propanesulfonic acid, or a pharmaceutically acceptable salt thereof.

125. (New) The amyloid-targeting imaging agent of claim 8, wherein Y is a sulfonate or a sulfate group.

126. (New) The amyloid-targeting imaging agent of claim 125, wherein Q^b is –$NHCH_2CH_2CH_2$-.

127. (New) The amyloid-targeting imaging agent of claim 126, wherein A_t is 3-hydroxy-1-propylsulfamic acid O-sulfate or a pharmaceutically acceptable salt thereof.

128. (New) The amyloid-targeting imaging agent of claim 9, wherein Q^b is an alkylene or a piperizine-1,4-bis(alkylene).

129. (New) The amyloid-targeting imaging agent of claim 128, wherein A_t is 1,6-hexanedisulfonic acid or a pharmaceutically acceptable salt.

130. (New) The amyloid-targeting imaging agent of claim 128, wherein A_t is 1,4-piperizinebis(propanesulfonic acid) or a pharmaceutically acceptable salt.

131. (New) The amyloid-targeting imaging agent of claim 9, where A_t is Thiazole yellow G.